

Geographic Patterns of Student Enrollment in Ohio's State-Assisted Universities¹

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ABSTRACT. This is a study of geographic patterns of Ohio student enrollment at Ohio's state-assisted universities using cartographic analyses in conjunction with county-based enrollment data from the Ohio Board of Regents. Because the six largest urban counties—Cuyahoga (with Cleveland), Franklin (with Columbus), Hamilton (with Cincinnati), Lucas (with Toledo), Montgomery (with Dayton), and Summit (with Akron)—provide over 50% of the college students in Ohio, one factor that has an impact on the geographic patterns of enrollment is the colleges' locations relative to those counties. Maps depicting the percentage of students from each county attending the thirteen universities generally show that geographic distance between counties and colleges influences enrollment patterns. In addition, an examination of the distance bands from which colleges attract students shows evidence of a distance decay in enrollment for the "commuter universities," including Akron, Cincinnati, Shawnee State, Toledo, Wright State, and Youngstown State. In contrast, the "regional universities," including Bowling Green State, Miami, Kent State, and Ohio University, are located in more rural counties and, of necessity, must attract students from beyond their local hinterlands. The status of colleges also affects their geographic patterns of enrollment. Ohio State illustrates this. Due to its large student enrollment and status as the state's "flag ship" university, it draws college-bound students from throughout Ohio.

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INTRODUCTION

For US colleges and universities, the 1950s and 1960s can be characterized as a seller's market. There was little need to compete for students because higher education institutions already had all the students that they could handle. Beginning with the 1970s, however, the competition for high school graduates from a declining pool had become more intense as colleges and universities struggled to maintain their enrollment levels. Such competition has inevitably focused more attention on institutional marketing strategies and source or market areas of potential students (Marble and others 1995; Marble and others 1997).

Source areas of college students for individual schools have been studied using county data. McConnell (1965) examined source areas for Bowling Green State University, OH, using 1962-63 enrollments, whereas Kariel (1968) focused on the 1962 freshman class at Western Washington State College in Bellingham, WA. Both researchers used gravity-potential formulations and reported that college-age population in the county of origin and distance of the county from the college were significantly related to enrollment patterns. In contrast to these prior studies which focused on single institutions, the purpose of this study is to describe the geographic patterns of enrollments at all of Ohio's state-assisted universities. Such competition has inevitably focused more attention on institutional marketing strategies and source or market areas of potential students (Marble and others 1995, Marble and others 1997).

MATERIALS AND METHODS

The information for this study comes from the 1996 *Student Inventory Data* report compiled by the Ohio Board of Regents (1996). This report limits itself only to Ohio resident students attending the thirteen state-assisted universities in Ohio (Fig. 1).

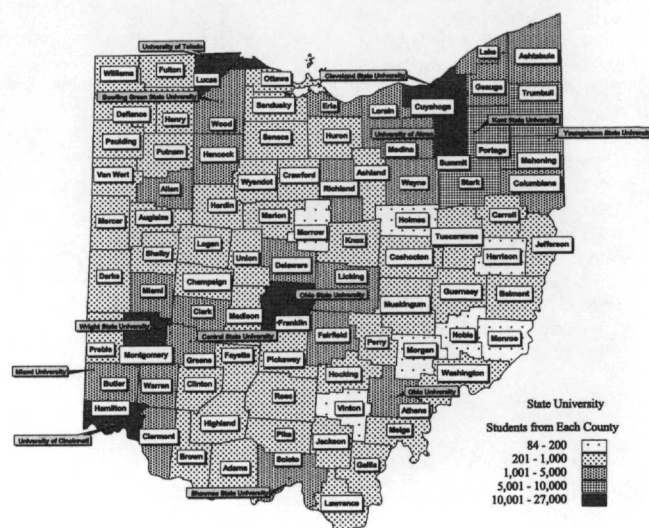


FIGURE 1. Enrollment of Ohio residents in 13 state-assisted universities, 1996.

Cartographic analysis is used to delimit the source areas of the state-assisted universities. The percentage of students in each of Ohio's counties attending each of the thirteen institutions was selected as a measure of the various schools' drawing power throughout Ohio.

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Because this percentage omits consideration of spatial differentials in the absolute number of students coming from each county, the distribution of absolute numbers also was mapped.

RESULTS

The number of students attending Ohio's universities varied widely among the 88 counties in 1996 (Fig. 1). Cuyahoga County led all counties as a source area for college students, providing 26,922 students. Other large source counties included: Hamilton (20,021), Summit (17,507), Franklin (16,830), Lucas (13,726), and Montgomery (10,135). All other counties within the state provided less than 10,000 students each. Just six of Ohio's 88 counties contributed 52% of the pool of students going to institutions of higher learning. Viewed from the other end of the source-region spectrum, some rural counties were home to few university students, for example, Vinton County's 78 and Noble County's 88 students.

By reviewing the maps showing the percentage of students coming from each county going to each of the thirteen state-assisted institutions, one sees a clear proximity pattern: universities attract a high percentage of their home-county students as well as those from spatially adjacent or nearby counties (Fig. 2 to 14). Ohio University, located in southeastern Ohio in Athens County, exemplifies this "proximity effect" (Fig. 8). Almost 90% of Athens County's college-bound students attend Ohio University. Moreover, it is also the "university of choice" for more than 50% of the students in adjacent and nearby counties, including Hocking, Jackson, Meigs, Morgan, and Vinton.

There appears to be, however, at least three types of exceptions to this "proximity effect." One occurs when two or more competing universities are located close

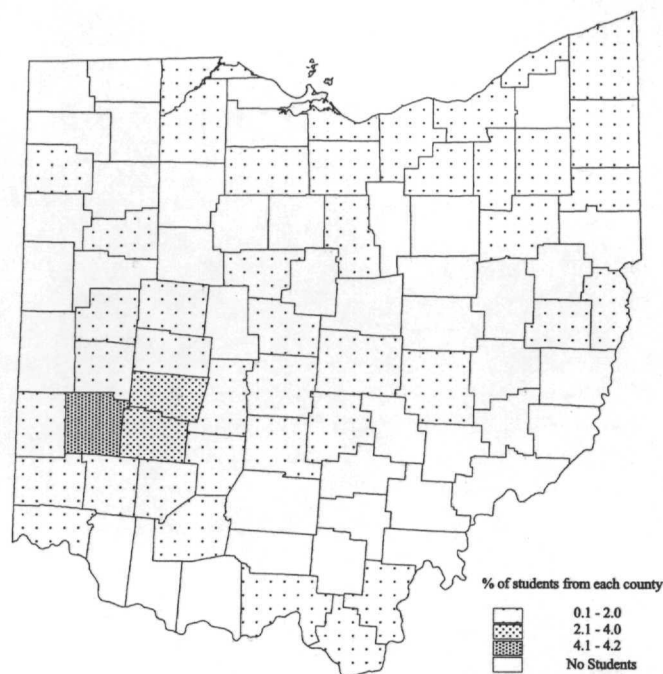


FIGURE 3. Percentage of students enrolled at Central State University, 1996.

to each other. An example of this is in Butler County where 37% of its college students are home-county enrollees at local Miami University, while 35% go to the University of Cincinnati in contiguous Hamilton County. A similar situation arises when non-contiguous counties are located at a longer distance from a state university. Guernsey County best illustrates this situation, wherein, 29% of its college students chose Ohio State University while another 29% opted for Ohio University.

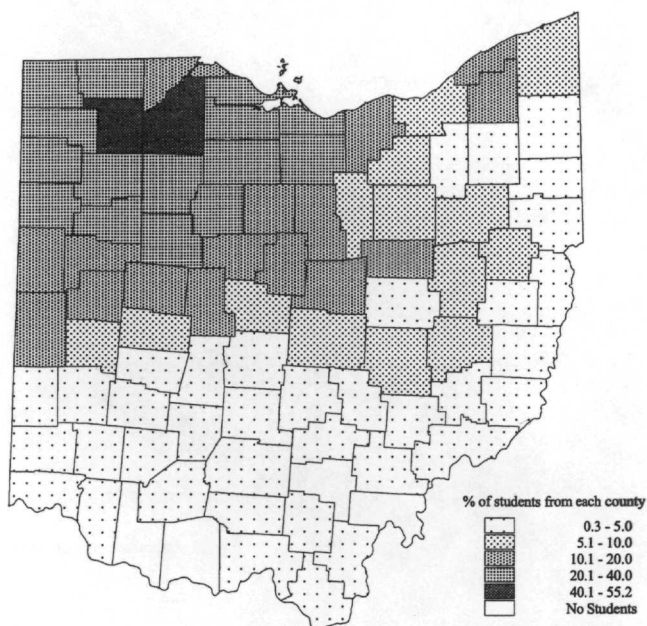


FIGURE 2. Percentage of students enrolled at Bowling Green State University, 1996.

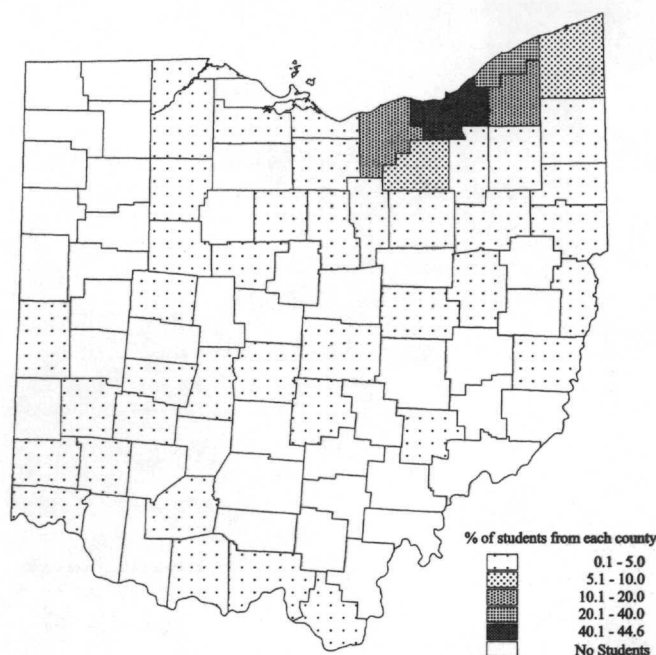


FIGURE 4. Percentage of students enrolled at Cleveland State University, 1996.

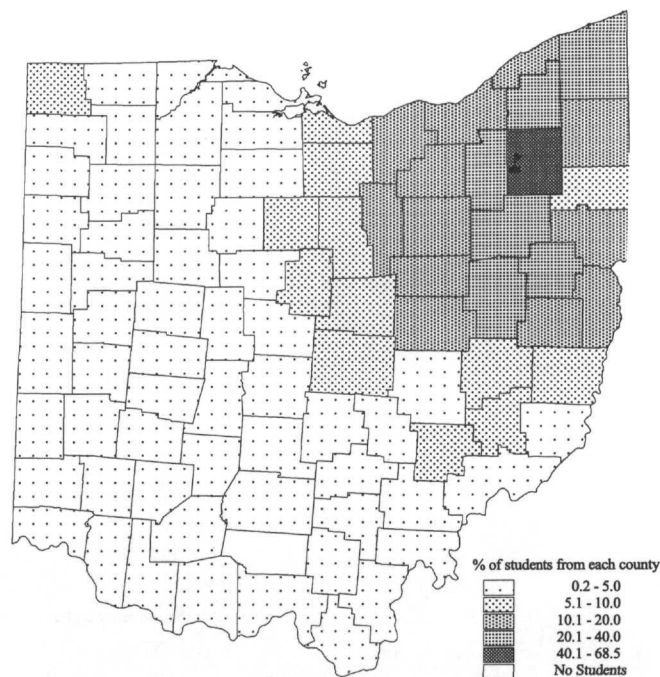


FIGURE 5. Percentage of students enrolled at Kent State University, 1996.

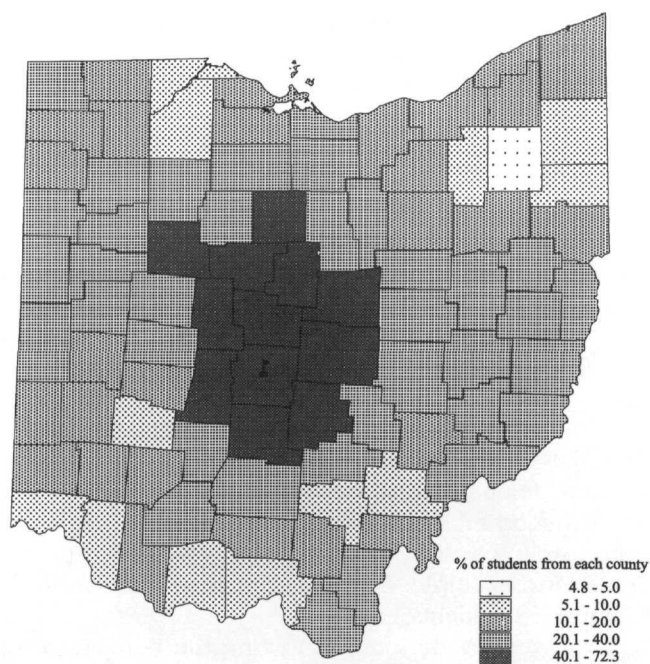


FIGURE 7. Percentage of students enrolled at The Ohio State University, 1996.

Central State University's situation is also an exception to the "proximity effect." Only 4% of Greene County's students attend in-county Central State (Fig. 3). This is due to Central State's unique status as being the only state-assisted school in the Historically Colored and Black Universities (HCBU) group in Ohio.

To assess further the role that space plays in shaping the student recruitment hinterlands of Ohio's state universities, the authors created concentric distance bands around each university. The radii of the bands

were set at 0-32 km, 33-64 km, and 65-97 km. In assigning each county to one of the three spatial bands, the authors took the distance from its county seat to a university and assigned the entire county to the appropriate distance band. This is only an approximation as counties may have parts of their area closer to or farther than the distance measured just by county seat distance to a university. For example, if a county seat is 30 km from a university, some of the county would

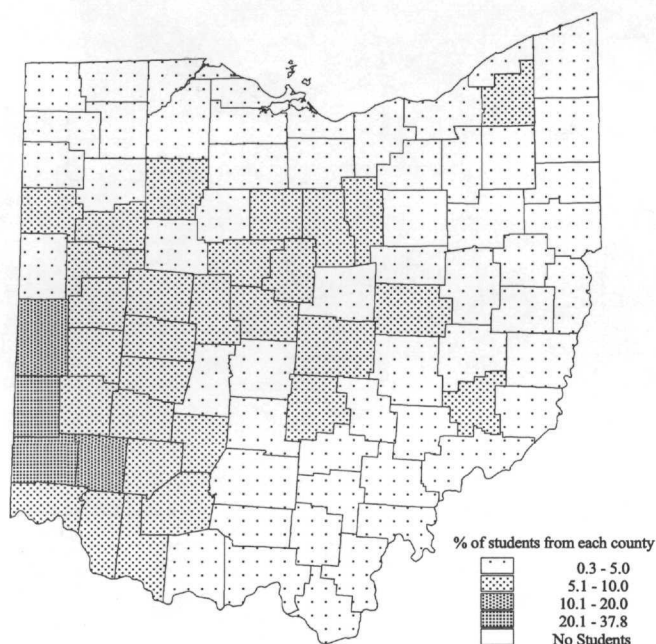


FIGURE 6. Percentage of students enrolled at Miami University, 1996.

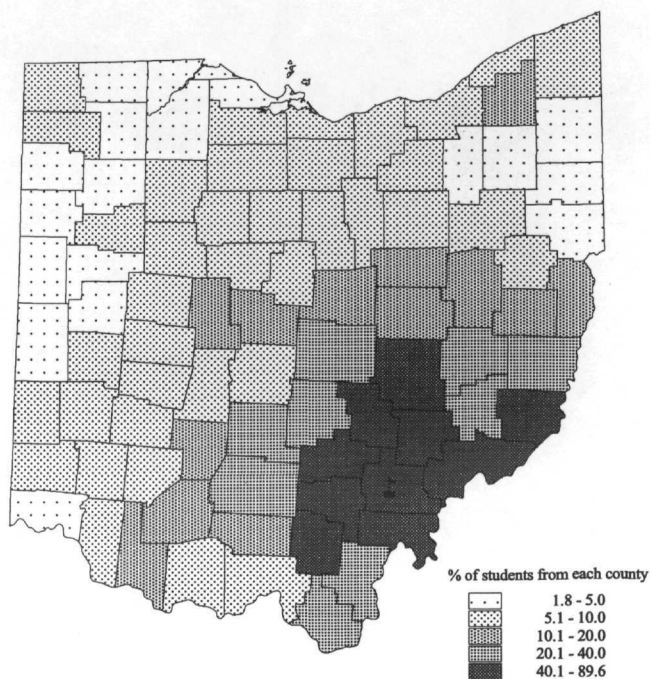


FIGURE 8. Percentage of students enrolled at Ohio University, 1996.

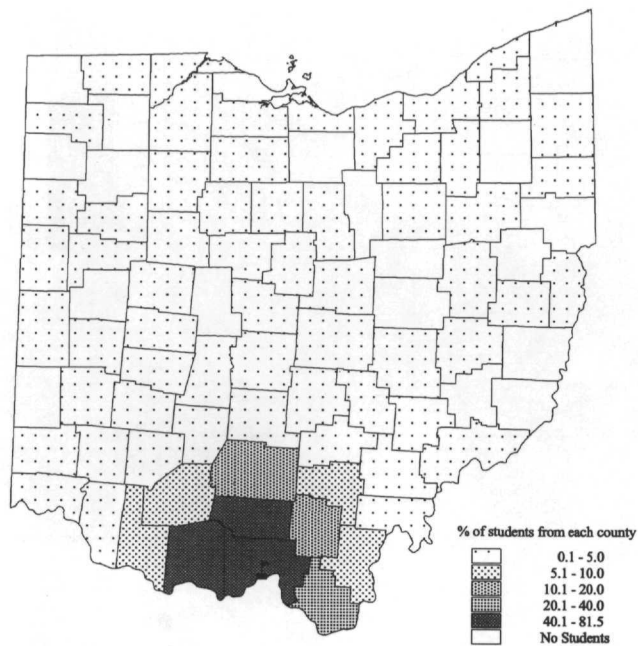


FIGURE 9. Percentage of students enrolled at Shawnee State University, 1996.

be in the 33-64 km band. However, without knowing the addresses of individual students, the authors lacked a measurement more precise than county-seat mileage to various universities.

Table 1 suggests two main categories of institutions based on their attraction of students from the various distance bands. One category includes those schools located primarily in major urban agglomerations which serve as source areas for large numbers of university students. Such schools attract a majority of their students

TABLE 1
*Percentage of students going to university
from various distance bands.*

University	0-32 km (0-20 mi) (%)	33-64 km (21-40 mi) (%)	65-97 km (41-60 mi) (%)	0-97 km (0-60 mi) (%)	>97 km (>60 mi) (%)
Akron	73	10	08	91	09
Bowling Green State	13	24	06	43	57
Central State	40	01	22	63	37
Cincinnati	59	16	05	80	20
Cleveland State	82	16	01	99	1
Kent State	19	63	06	88	12
Miami	17	25	07	49	51
Ohio	10	07	06	23	77
Ohio State	32	05	06	43	57
Shawnee State	68	19	03	90	10
Toledo	55	10	05	70	30
Wright State	58	19	04	81	19
Youngstown State	57	36	03	96	04

from within the 0-32 km distance band. Cleveland State exemplifies this group, drawing 82% of its students from the local area. Similar institutions include Akron, Cincinnati, Toledo, Wright State, and Youngstown State. Moreover, all of these schools draw over 70% of their total enrollees from within a 64-km range. These schools are best described as essentially "commuter universities." Shawnee State, too, falls into this category in terms of enrollment pattern, yet it is located outside of a major urban center. In contrast to the other institutions in this category, Shawnee State enrolls a high

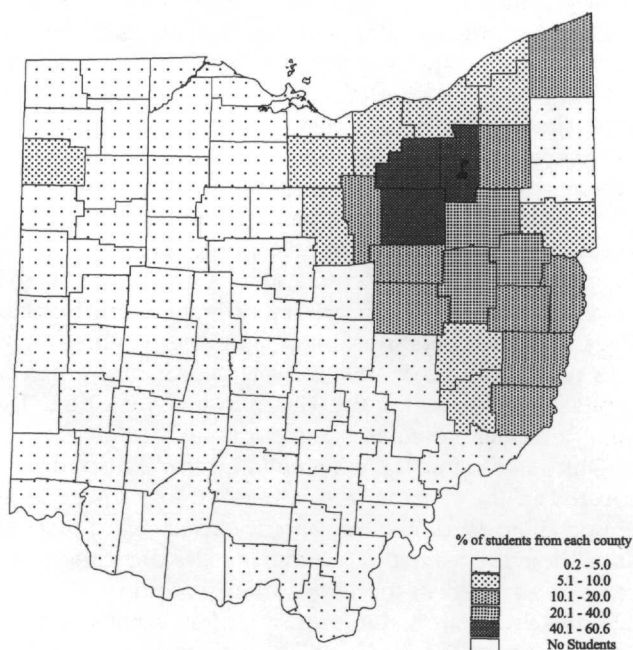


FIGURE 10. Percentage of students enrolled at The University of Akron, 1996.

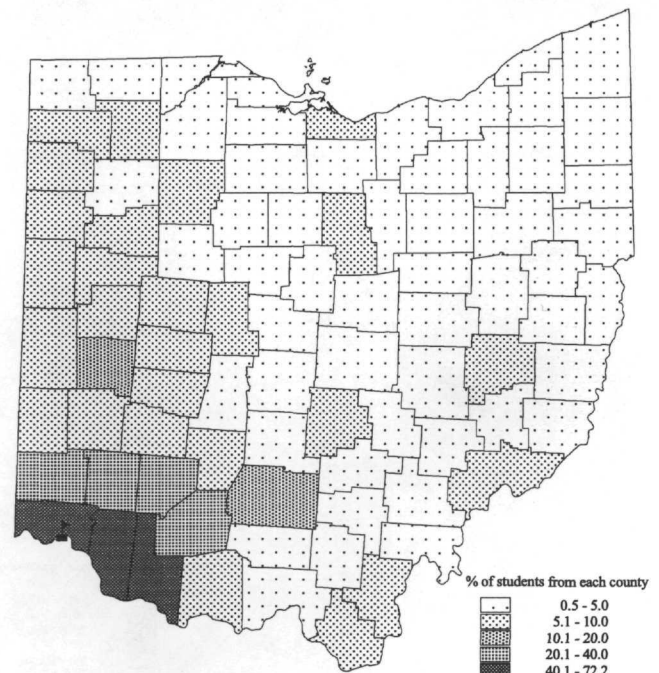


FIGURE 11. Percentage of students enrolled at University of Cincinnati, 1996.

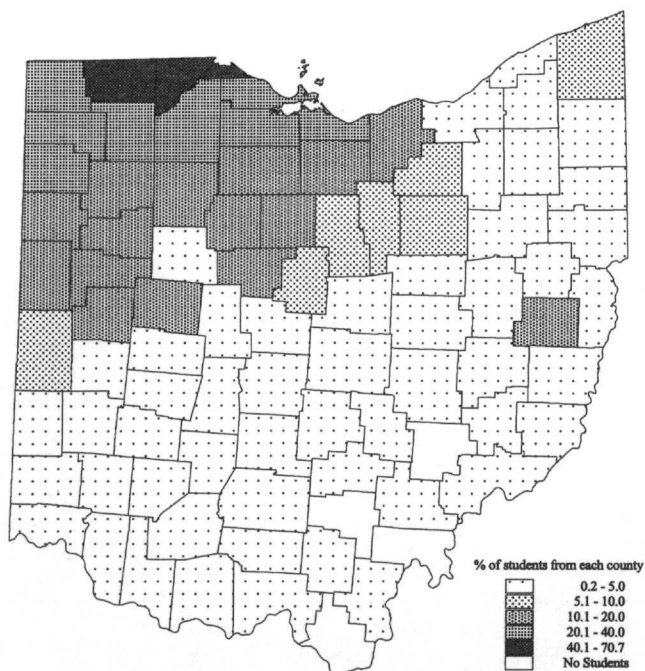


FIGURE 12. Percentage of students enrolled at University of Toledo, 1996.

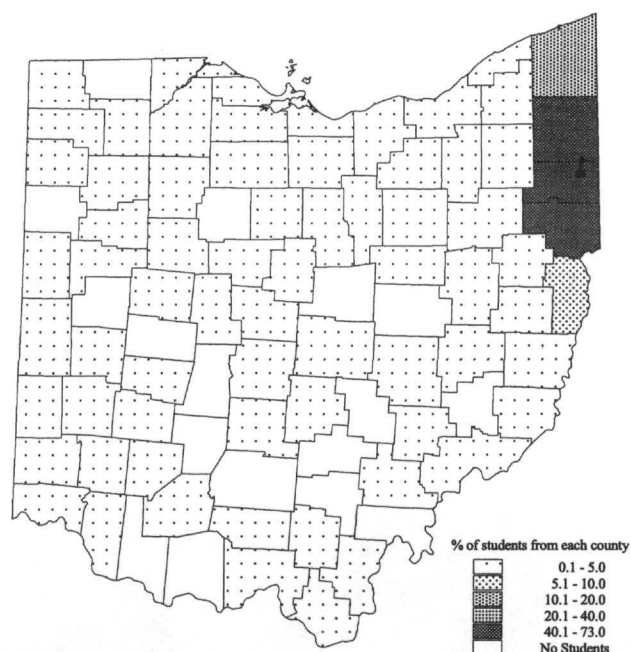


FIGURE 14. Percentage of students enrolled at Youngstown State University, 1996.

percentage (82%) of students from its home base of Scioto County (Fig. 9). By comparison, Cleveland State attracts only 45% of its students from its home county of Cuyahoga (Fig. 4). In effect, one might describe Shawnee State as a "rural commuter school."

In contrast to the universities located in the urban counties, most of the institutions situated in more rural counties fail to draw high percentages of their total enrollment from the immediate hinterland because there

are fewer college-bound students in their home counties. For example, Ohio University, Bowling Green State, Miami, and Kent State draw small percentages from the closest distance band (0-32 km): 10%, 13%, 17%, and 19%, respectively. To the contrary, these schools attract a higher percentage of their students from beyond the 64-km band. In the case of rural Ohio University, it attracts over 77% of its students from beyond the 64-km distance band compared to only 1% for Cleveland State. Since more rural schools draw students from spatially larger areas than do the "commuter universities," they can be described as "regional universities."

Based on their wider drawing power, Central State and Ohio State are classified as "regional universities," but the unique status of each has an impact. Central State draws almost 40% of its students from the 0-32 km category, which includes students from Greene County, its home base, and nearby Montgomery County. Also, it draws almost 22% of its students from the 65-97 km band, which is the highest percentage for any of the universities. Since Central State is one of the HCBUs, its primary market is African-American students. Franklin County (with Columbus) and Hamilton County (with Cincinnati), homes to relatively large African-American populations, lie within the 97-km radius, leading to the high percentage coming from that zone.

Ohio State's situation in Franklin County is also unique. Located in the third largest source county for college-bound Ohio students, one might expect Ohio State to draw heavily from this county as do the other universities situated in the large urban counties. Yet only 32% of Ohio State's student population comes from its home county. This is undoubtedly attributable to the school's huge student enrollment and its status as the state's "flag ship" university, all of which act as a magnet

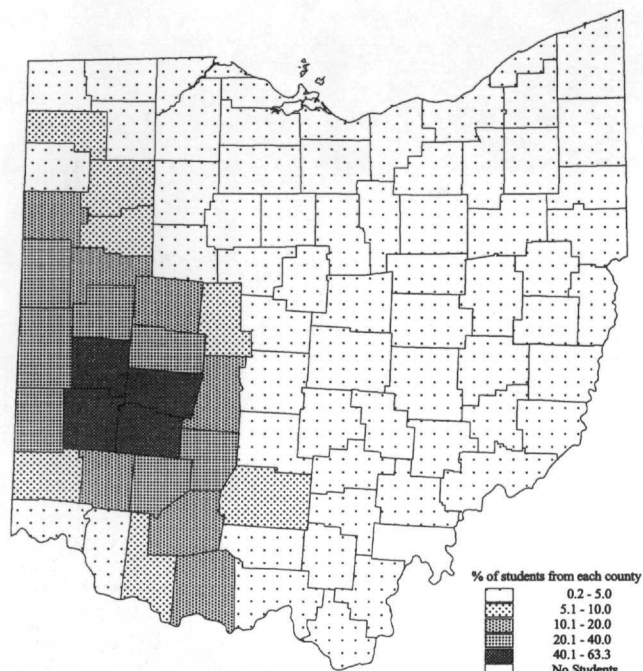


FIGURE 13. Percentage of students enrolled at Wright State University, 1996.

for college-bound students from throughout the state.

It is apparent that geographic distance has an important impact on possible source areas for the "commuter universities." In all cases, the percentage of students going to each of the "commuter universities" decreases in each successive distance band. Moreover, Ohio State demonstrates a similar tendency. In contrast, the regional universities' source areas appear to be less affected by the distance factor. Their location relative to the large urban centers, however, affects the spatial configuration of their student-market hinterlands. The example of Central State's location relative to Franklin and Hamilton counties has already been demonstrated. Another example is Kent State's drawing over 63% of its students from the 33-64 km distance band, which is attributable to nearby Cuyahoga and Summit counties being located in the same distance band, each with its large pool of college-bound students.

For many of the state universities, their ability to draw students from the major urban centers in Ohio is critical since, as noted before, only six metropolitan counties contribute over 50% of the students. Among these six large counties, Cuyahoga is unique because its local university, Cleveland State, draws a lower percentage of the county's students than is true of the other metropolitan counties with their own home universities. Only 45% of Cuyahoga County's college-bound students attend Cleveland State, as opposed to 72% of Hamilton County's students choosing the University of Cincinnati, and 72% of Franklin County's students attending Ohio State.

Viewed from another perspective, Cuyahoga County supplies 10% or more of the students at five different universities: Bowling Green State, Central State, Cleveland State, Kent State, and Ohio University. It seems that the competition for students among the state universities is most intense in Cuyahoga County, whereas, the other larger metropolitan counties are primarily suppliers to their local university.

DISCUSSION

This study offers some tentative conclusions for university student enrollment analysis. It is readily apparent, at least in Ohio, that geography shapes the market area of a university. As in the McConnell (1965) and Kariel (1968) studies, there is evidence that the geographical distance between counties and universities has an impact on enrollment patterns. The maps depicting the percentage of students from each county attending the thirteen institutions generally display a "proximity effect." Also, the distance band data suggest a distance decay in enrollment in several cases. Commuting time between students' homes and various universities may be more important than mere intervening physical distance. Geography also matters from the perspective of the colleges' locations relative to the large urban centers. Of the six most populous counties, the competition for students is most intense for college-bound students from Cuyahoga County.

The status of given schools in the state may also influence their source areas. Central State University, as an HCBU, is perhaps the best example in this study. Other status indicators may need to be included in future studies—such as availability of academic majors, reputation, and prestige—all of which are important. The intervening location of private, non-state-assisted colleges and universities may also shape source areas of the state-assisted schools in Ohio.

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